



2008

**International Herbal Water Foundation  
Proposed Draft Standard**

Value Added Water Based Beverages  
Specification



Reg.36/2006

## INTERNATIONAL HERBAL WATER FOUNDATION

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Hon'ble Minister for Health  
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02-10-08

**Sub: IHWF – Request for New Standard – Under PFA for Flavoured Water and Sweetened Flavoured Water – Proposal and draft Standard submitted.**

Dear Sirs,

IHWF is a registered Society, under Tamilnadu Society Act. It was registered in year of 2006. Reg No. 36/2006. and Member in, Federation of Association of Small Industries of India (FASII), The Confederation of Indian Industry (CII), Federation of Indian Chambers of Commerce and Industry (FICCI), There are 65 members in this Organisation from Various Places of INDIA. All the members are marketing Bottled Drinking Water (BDW) for the past several years; duly licensed under the provisions of PFA Act 1954, Our members are doing business in accordance with all legal provisions and we wish to follow good business practices.

As the consumer demand for BDW is growing over the years, new business promoters enter into this field regularly everyday. This type of new entry makes this Bottled water industry (BWI) more competitive and leads to unfair trade practices by a few. On the whole, this industry has become volatile and is chocked with problems in many fronts.

Under the above circumstances, we, the Members of IHWF, have decided to diversify our trade to satisfy the growing consumer needs by introducing value addition to the Drinking water. The growth of Bottled water Industry depends upon new methods, standards, conditions and techniques prevailing in other Countries. Only in our Country Bottled Water is sold without any additives like flavour etc. Whereas, the practice of adding flavour to drinking water is in vogue from time immemorial in our households.

We hope that our legal frame work will not hesitate to open new doors for the expansion in BWI. We are submitting herewith a proposal to include a separate category or a new standard for flavoured water under PFA rules 1955.



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We request the Ministry of Health & Family Welfare and Directorate General of Health Services, to prescribe a new Standard defining the composition, ingredients, test parameters, etc., required for Flavoured Water and Sweetened Flavoured Water in App. B.

Appropriate Labeling provisions may also be recommended for adoption. Members of our Technical Committee have drafted the following standard for your kind perusal.

We would be much pleased to provide any clarification or further information if needed by the Directorate.

We request you to look into our proposal and pass favourable orders at your earliest so that this industry would be happy to add value to the existing water industry.

Thanking You,

President  
International Herbal Water Foundation

#### Copy submitted to

**Dr. Anbumani Ramadoss,**  
**Hon'ble Minister for Health, Ministry of Health & Family Welfare Govt of India.**  
Nirman Bhavan, Maulana Azad Road, New Delhi - 110 011.

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## ORIGIN AND HISTORY OF HERBAL WATER

**Herbal water** traces its history back to mineral waters found in natural springs. Ancient societies believed drinking mineral waters could cure many diseases. Early scientists who studied mineral waters included Geber, Alkindus, Rhazes, Paracelsus, Robert Boyle, Friedrich Hoffmann, Antoine Laurent Lavoisier, Hermann Boerhaave, William Brownrigg, Gabriel F. Venel, Joseph Black, and David Macbride.

The earliest soft drinks were Sherbets developed by Arabic chemists and originally served in medieval Near East. These were juiced drinks made of crushed fruit, herbs or flowers, Fruit. The first marketed soft drinks (Herbal water) in Western world appeared in the 17th century. They were made from water and lemon juice sweetened with honey. In 1676, the Compagnie des Limonadiers of Paris was granted a monopoly for sale of lemonade herbal water. Vendors carried tanks of lemonade on their backs and dispensed cups of drink, to thirsty Parisians.

The drinking of either natural or artificial mineral water was considered a healthy practice. The American pharmacists selling mineral water began to add herb and chemicals to mineral water. They used birch bark (see birch beer), dandelion, sarsaparilla, fruit extracts, and other substances. Flavorings were also added to improve the taste. Pharmacies with soda fountains became a popular part of American culture. Many Americans frequented the soda fountain on a daily basis. Due to problems in the U.S. glass industry, bottled drinks were a small portion of the market in the 19th century. Most soft drinks were dispensed and consumed at a soda fountain, usually in a drugstore or ice cream parlor. In the early 20th century, sales of bottled soda increased exponentially. In the second half of the 20th century, canned soft drinks became an important share of the market.

The roots of soft drinks extend to ancient times. Two thousand years ago Greeks and Romans recognised the medicinal value of mineral water for drinking, a practice that continues to present. In late 1700s Europeans and Americans began drinking the sparkling mineral water for its reputed therapeutic benefits. The first imitation mineral water in the U.S. was patented in 1809. It was called "soda water" and consisted of water and sodium bicarbonate mixed with acid to add effervescence. Pharmacists in America and Europe experimented with myriad ingredients in the hope of finding new remedies for various ailments. Already the flavored soda waters were hailed as brain tonics for curing headaches, hangovers, and nervous afflictions. Pharmacies equipped with "soda fountains" featuring the medicinal soda water soon developed into regular meeting places for local populations. Flavored soda water gained popularity not only for medicinal benefits but for the refreshing taste as well. The market expanded in the 1830s when soda water was first sold in glass bottles.



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Filling and capping the gaseous liquid in containers was a difficult process until 1850, when a manual filling and corking machine was successfully designed. The term "soda pop" originated in the 1860s from the popping sound of escaping gas as a soda bottle was opened.

In the early 1880's pharmacists experimented with powerful stimulants to add to soda water, including cola nuts and coca leaves. They were inspired by Bolivian Indian workers who chewed coca leaves to ward off fatigue and by West African workers who chewed cola nuts as a stimulant. In 1886 an Atlanta pharmacist, John Pemberton, took the fateful step of combining coca with cola, thus creating what would become the world's most famous drink, "Coca-Cola". The beverage was advertised as refreshing as well as therapeutic: "French Wine Cola—Ideal Nerve and Tonic Stimulant." A few years later another pharmacist, Caleb Bradham, created "Pepsi-Cola" in North Carolina. Although the name was a derivation of pepsin, an acid that aids digestion, Pepsi did not advertise the beverage as having therapeutic benefits. By the early 20th century, most cola companies focused their advertising on the refreshing aspects of their drinks.

**In India**, the vettiver roots and other types of herbs packed in muslin cloth and soaked in clay pots containing drinking water, thereby adding herbal contents in water . In Hindu temples Thulasi leaves soaked in water is distributed as Thirtham—Holy water to devotees. The small hint of herbal leaves is believed to give great health benefits. Herbal Water with Ajmo (Omam) is widely used for digestion even to this day.

Similarly, Yestimadhu and Thuthuvali herbal water is used for treatment for common cold. Rosewater, ginger water packed in bottles is still used as a stimulant; refreshing drink. Jal Jeera & Rock salt mixed soda and lemon is also consumed in many parts of North India as a health drink.

In South India, Kerala State "Thaaga Sambandhi" (pink coloured herbs) blended with drinking water is consumed routinely even today. 1800's Drinking water was also filtered (drips) in seven stages in clay, copper pots kept one below the other and each of the pots is filled with different pebbles, herbs this filtration unit was in Royal people house only.

As flavored carbonated beverages gained popularity, manufacturers struggled to find an appropriate name for the drinks. Some suggested "marble water," "syrup water," and "aerated water." The most appealing name, however, was "soft drink," adapted in the hope that soft drinks would ultimately supplant the "hard liquor" market. Although the idea never stuck, the term soft drink did.



Until the 1890's soft drinks were produced manually, from blowing bottles individually to filling and packaging. During the following two decades automated machinery greatly increased the productivity of soft drink plants. Probably the most important development in bottling technology occurred with the invention of the "crown cap" in 1892, which successfully contained the carbon dioxide gas in glass bottles. The crown cap design endured for 70 years.

The advent of motor vehicles spawned further growth in the soft drink industry. Vending machines, serving soft drinks in cups, became regular feature at service stations across the country. In the late 1950s aluminum beverage cans were introduced, equipped with convenient pull-ring tabs and later with stay-on tabs. Light-weight and break-resistant plastic bottles came into use in the 1970s, though it was not until 1991 that the soft drink industry used plastic PET (polyethylene terephthalate) on a wide scale.

Beverage manufacturers have been quick to respond to consumer preferences. In 1962 diet colas were introduced in response to the fashion of thinness for women. In the 1980s the growing health consciousness of the country led to the creation of caffeine-free and low-sodium soft drinks. The 1990s ushered in clear colas that were colorless, caffeine-free, in 2004 preservative-free value added water based beverage, calorie free and herbal water.



The Japanese are heir to waters of great quality or historical value, some which are even claimed "divine". In order to raise the public awareness and help preserve this natural heritage the Japanese Ministry of Environment designated 100 sources of natural water as Japan's "Selected Exquisite" waters in 1985. Thus, in addition to receiving healthy water from the tap, residents and visitors in Japan can seek out such waters as White Dragon water, which flows from the mouths of twin entwined dragons at the Arai (New Wells) Yakushi Temple in Tokyo or bring home samples of the Yotei Mountain's Spout Water, which spurts from the foot of the mountain at the rate of 80,000 tons/day after filtering through the volcanic rock.

So it is with a bit of chagrin that we report today on the newest trends in bottled water in Japan: Suntory, Japanese whiskey company and market leader in bottle water (Tennensui water), has added a new twist to consumer demand for water in bottles. "Mizumizushia" has been on the market since March 2005, selling at about 3.80 U.S. Dollars per 2-liter bottle. The water, riding on the Japanese health boom, contains deep seawater and dietary fiber, which is claimed to reduce the absorption of sugar if it is consumed with meals, helping to control a rise in blood sugar related to diabetes. The deep sea water is also rich in magnesium, replenishing a mineral which many diabetics lack.

Proving that this is a trend and not an isolated case, competitor House Foods Corp started selling "Mineralist" containing zinc, copper and iron, and claimed to reduce the risk of osteoporosis for women. House Foods has been also been selling water with dietary fiber since 2004.

A three-fold increase in the sales of bottled waters over the last decade, with double digit growth rates (11 percent since 2004, predicted to be repeated in this year) reflects not only new domestic products, but also the import of high-end European waters such as Volvic, imported by Kirin Breweries, which has exceeded the market average with 14% growth since last year. Although Japanese consumption of bottled water is still low relative to European and American patterns, Japan seems to be joining the trend towards resource-intensive sources for life's most important ingredient.

**Aquanomy** The latest trend in bottled water is the art (or science) of choosing just the right kind of water to pair with your food (based on mineralwater)



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## Global Law considered for Herbal, Flavours Water Beverages

Flavours, extracts and essences - derived from spice or fruit - can be added to bottled water<sup>A</sup>, but these additions must comprise less than one percent by weight of the final product. Beverages containing more than one percent by weight of flavours are considered by Statistics Canada to be soft drinks. Similarly, soda water, seltzer water and tonic water are considered as soft drinks rather than bottled water.

### **Ayala's Herbal Water is the first nationally available organically enhanced flavored water on the market!**

PHILADELPHIA, May 2 /PRNewswire/ -- The Organic Crop Improvement Association has reviewed Ayala's Herbal Water and has issued its OCIA International Organic Certification. The new certificate, bearing the <sup>B</sup>USDA Organic logo, applies to all six Herbal Water(TM) flavors and will make Ayala's Herbal...

#### Mineral Water Makes Waves<sup>C</sup>

Most new-age drinks designed for U.S. consumers don't translate well to the Japanese palate—they are just too sweet. But mineral water, which tends to be sugar-free throughout the world, tends to be the exception to that rule.

The bottled water market has recovered from a food safety import scare in 1995 and domestic production is growing. Still, the market is smaller than France, the United States and even other Asian nations. This suggests that the water market has room to grow.

There are many reason to be confident that it will. First, many consumers in Japan worry about the quality of their tap water. This is a special concern in metropolitan areas such as Tokyo and Osaka. And, in spite of past problems, consumers seem confident that bottled water ensures good flavor and high safety standards. Also, Japanese teenagers who see bottled water on television, and vacationers who enjoy it on overseas trips, contribute to the growing demand for trendy bottled waters.

One product that continues to sell is "near water." This is mineral water with a slightly fruity taste. It often contains vitamins, royal jelly, fruit flavors or caffeine.



## FOREWORD

In INDIA adding Herbs Flavour to Food and Beverages is in vogue from time immemorial. This practice has been observed by the Royals. more and more consumers are asking for food and beverages with natural ingredients and great taste. One up-and-coming trend in product development is using the fine flavour profile of blossoms for their natural flavours when combined with native and exotic fruits; These ingredients create a new and unique taste experience. If water Conforming to standards prescribed under PFA Rules is to be added with flavor, it has to be classified under Non alcoholic beverage, where carbonation is mandatory. Whereas, addition of flavour is permitted even in Milk and Tea which has natural flavor in itself. Besides other drinks and fruit products, processed foods like biscuits etc are also permitted to contain flavors under specified conditions.

India has a rich tradition and practice of adding flavor, spices and herbs to water meant for drinking, of course, with diversity among various States, Communities, and regional differences for centuries. In spite of this age-old practice, it has not been formalised and standardised for trade as a commodity. For want of such legalized value addition and enrichment, the drinking water industry remains static and could not diversify its activities.

In the absence such legalised formalities, the bottling water industry could not satisfy the needs of Foreign Tourists, who are exposed to such flavored waters in their Countries. Our consumer survey also strengthens our views and conforms the strong potential the Indian market has for flavored water. Keeping the above points in mind the IHWF has come out with a proposal and has drafted a standard, which could be used both for flavored water and flavored water based drinks.

IHWF has a technical committee with expert members drawn from various branches of water industry with a view to follow highest standard of purity, hygiene and statutory requirements. The above committee has drawn this draft standard for flavored water after going through all National and International Specifications.

Value added flavored water may be defined as "Purified water conforming to specifications of packaged drinking water added with extracts of Herbs, Fruits or



parts of Plant origin or extraneous flavor. No medicinal, curative, preventive, nutritional or health benefits are claimed. It is a normal water or drink, traditionally used for centuries prepared by adding natural plant based extracts not exceeding ~0.5%.

As the water used in the preparation of flavored water has to confirm to the PFA specifications it will also comply standards meeting highest purity and hygiene requirement of the law of the land. Only extraneous addition would be permitted flavours.

In the home made preparation of flavored water, the quantity of flavor extract added to water is not measurable whereas in this product a measured quantity of flavor acceptable to all consumers is possible for addition. Moreover consumer demand and choices vary according to their taste, likes and dislikes, buying power etc. The awareness on calorie intake and health consciousness is also improving considerably. Consumers demand all nutritional information on the label. They read it before consuming. Hence a shift in consumer choice for variety of water based drinks with less number of additives is seen. The introduction of flavored of water will open new horizon in the bottled water industry.

We firmly believe that consumer acceptance for water laced with different flavors will be overwhelming.



## 1. Scope.

This standard prescribes the requirements Composition, Ingredients, Methods of Preparation, Labeling, Hygiene Practices to be adopted, Methods of Sampling and Test procedures for ready to serve non-alcoholic beverage other than carbonated water. It is, flavored water with extracts of Herbs<sup>1</sup>, Fruits or Extracts parts of Plant origin , Flavor Concentrate as ingredients.

## 2. Good Hygienic Practices, Reference Version.1

Good hygienic practices for a water-based beverage industry required for Flavored water processing plant are incorporated in reference version 1. The Good hygienic practices listed in Version .1 contain provisions through reference in this text constitute provision of this standard. At the time of publication, the reference editions indicated were valid. All standards are subject to revision. Users of this standard are encouraged to follow the possibility of applying the most recent editions of the standards.

## 3 Definitions.

As used in this chapter, following terms shall have the following meanings;

### 3.1. **Flavored Water.**

"Flavored Water" shall mean \*Purified water containing extracts of Herbs, Fruits or parts of Plant origin, flavor concentrates in minute traces, singly or in combination. intended for sale as a ready to serve drink for human consumption.

### 3.2 **Sweetened Flavored Water.**

"Sweetened Flavored Water" shall mean \*Purified water containing extracts of Herbs, Fruits or Extracts parts of Plant origin, Flavor Concentrate in minute traces with added artificial sweeteners permitted under PFA Rules, 1955 intended for sale as a ready to serve drink for human consumption Sweetened Flavored Water shall be calorie-free and sugar-free.

### 3.3 **\*Purified Water.**

Purified Water Means water which conforms to standards prescribed for Packaged Drinking Water under PFA Rules, 1955; free from Microbiological/ chemical contamination and Radioactive residues, Pesticide Residues for quality and standards set by Government of India for soft drink, Beverage, Brewery, fruit juice, Milk Industry and food processing industry, where water require more hygiene as per PFA Rules, 1955.

### 3.4 **Flavor Concentrate / Extract.**

Flavor concentrate or extract means any extracts of Herbs, Fruits or Extracts parts of Plant origin, Flavor Concentrate, Natural Flavor or Natural Identical Flavor Concentrates (Not exceeding ~0.5%. Is permissible in the preparation of flavoured water)

<sup>1</sup>Herbs of botanical name conforming to wealth of India, or glossary of Indian medicinal plant, or similar publication of NISCON (National Institute of Scientific Communication, or Department of AYUSH. Defines common herbs

**\*Purified Water.** Purified Water Means water which conforms to standards prescribed for Packaged Drinking Water under PFA Rules, 1955; free from Microbiological / Chemical contamination and Radioactive residues, Pesticide Residue for quality and standards set by Government of India for soft drink, Beverage, Brewery, fruit juice, Milk Industry and food processing industry, where water require more hygiene as per PFA Rules, 1955.



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3.5     **\*Natural Flavours and Natural Flavouring Substances:- (as per Rule 63. of PFA Rules, 1955 )**

"Natural Flavours" and "Natural Flavouring Substances" are flavour preparations and single substance respectively, acceptable for human consumption, obtained exclusively by physical processes from vegetable for human consumption.

**Nature-Identical Flavouring Substances :-**

Nature-identical flavouring substances are substances chemically isolated from aromatic raw materials or obtained synthetically; they are chemically identical to substances present in natural products intended for human consumption, either processed or not.

3.6     **Source of Flavor Concentrate or Extract.**

Flavors may be obtained from botanical plants Fruits mentioned in Wealth of India, or Glossary of Indian medicinal plant, or similar publication of NISCON -National Institute of Scientific Communication or Department of AYUSH In this preparation extracts of Traditional Herbs, Fruits or parts of Plant origin extracts, flavor used in households for centuries all over world. or Concentrates, Condensation, Essential oil, may be used for preparing Flavored Water.

3.7     **Flavored Water Bottling.**

"Bottling" means filling, capping, packing and enclosing in bottles or in containers.

3.8     **Ready-to-Drink Flavored Water.**

Means water-based beverage (Flavored Water) a drink for direct consumption or in chilled state.

3.9     **Retail Sale.**

Means any sale in retail or to a Consumer for his or her use for consumption other than for the purpose of business

3.10    **Flavored Water Beverage Plant.**

"Flavored Water Beverage Plant" means any place, premise or establishment, or any part thereof, where flavored water processed, manufactured, bottled or converted into form for distribution or sale and such rooms or premises where beverage product manufacturing equipment and containers are washed, sanitized and stored.



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Every Flavored Water Beverage plant used for the preparation, manufacture and bottling of any beverage shall be constructed of cement, concrete or tile laid in cement or other material impervious to water; shall be adequately lighted and ventilated and all floors with smooth surface; and shall have sufficient pitch to ensure drainage; walls and ceilings shall be varnished with Lead free paint, painted with light colour and kept clean; doors, windows and other openings of any rooms in which beverages or the ingredients of such beverages shall be screened.

All machines, apparatus, vessels, fountains, tanks, Containers caps other equipments, and ingredients used in the manufacture of beverages shall be kept in sanitized condition. No vessels or tanks shall be used for Flavor mixing or for storing such mixed Flavor unless they are of glass or stainless steel, porcelain lined, made of some other suitable impervious material.

Beverage plants shall be located in buildings so constructed that the bottling operation is performed in separate rooms, but such construction shall allow for modern practices in the loading or unloading of trucks in the same rooms, and for modern practices in the use of conveyor systems or other means of mechanical handling.

The Flavor Mixing room shall be separately enclosed, well ventilated and lighted, provided with sinks and taps for hot and cold water, thoroughly protected against vermin, flies, dirt and dust and so constructed as to be easily cleaned.

Wash basin, sink and toilet shall be provided for employees. No toilet shall open directly into any room used for the preparation or bottling of any beverage.

### 3.11

#### **Purified Water Process.**

Water used for Flavored Water may be produced by one or more of following process, reverse osmosis; multilevel sand filtration; activated carbon filtration; nano filtration; micron filtration; ozoneizer; and ultraviolet processing; source protection and monitoring, advanced water purifying technology may be used.

### 3.12

#### **Carry Over Food Additives (as per 64c.PFA Rules, 1955 )**

Carry over of Food Additives - For the purpose of this standards the "Carry Over" principle applies to the presence of additives such as colours, flavouring agents, anti-oxidants, emulsifying and stabilizing agents and preservatives in food, as a result of the use of raw material or other ingredients in which these additives were used. The presence of contaminants is not covered by this purpose.



(2) The presence of an additive in food through the application of the carry over principle is admissible in general unless otherwise specifically prohibited in the rules or in Appendix B provided the total additive including the carry over through the raw material or other ingredients does not exceed the maximum amount so permitted.

3.13 **Flavored Water Industry Shall Not Release Pollution.**

Chemical used in Flavored water process shall not release any hazardous waste out from Plant.

#### **4. Essential Composition and Quality Factors for Water-Based Beverage**

##### **Basic Ingredients**

- 4.1 \*Purified Water 99.5 to 99.9 %
- 4.2 Flavor Concentrates; Extracts; Condensation; Essential oil; not exceeding ~0.5%.
- 4.3 Natural; Natural Identical Flavors.
- 4.4 Herbs, Fruits or parts of Plant origin extracts, flavor.

#### **5. Quality Factors for Water-Based Beverage Flavored Water.**

##### **Essential quality norms for Flavored Water:**

- 5.1 All the ingredients should comply with respective standards. as per PFA Rules, 1955
- 5.2 Contents should be safe for human consumption and health.
- 5.3 The product should be free from abnormal odour, foreign matters, insects and part of them.

#### **6. Preservatives Used For Concentrates, Extracts, Condensation.**

##### **Preservatives maybe added for one or more of the following purposes:-**

- 6.1 Carry over food additives (preservative) approved by PFA Rules,1955.
- 6.2 Preservative is a food grade substance for use in Flavor extracts.
- 6.3 To retain the flavor Concentrate, Extract, Condensation properties. in good condition
- 6.4 To retain quality, stability and to enhance shelf life.
- 6.5 To add or enhance taste to Flavored Water.
- 6.6 To process Flavored Water, to retain properties during manufacture, packaging and transport.
- 6.7 To provide essential constituents of Flavored drinking water; which complies with applicable standards of purity or quality in respect of flavor used.
- 6.8 Preservative shall not be directly added to Flavored water. Carry over food Additives will apply ( as per rule 64c of PFA Rules 1955 )



## **7. Type of Flavored Water.**

- 7.1 Flavored Water.
- 7.2 Sweetened Flavored Water

## **8. Requirements for Water-Based Beverages Flavored Water.**

- 8.1 Hygienic conditions, Flavor Enriched Water processed in factories maintained in accordance with IHWF Good hygienic practices Version.1 or any other condition stipulated by regulating authority
- 8.2 Source of water shall be free from any other contamination.
- 8.3 Flavor concentrate / extract or Condensation  
Flavor extracts are made under state of art process.  
Flavor should be procured with Certificate of analysis.  
Flavor extracts should be with batch no, date of manufacture and expiry.

## **9. Flavored Water testing.**

- Flavor extracts contained in Flavored water are to be tested using the follows instruments to ensure standard of purity
- 9.1 HPLC, GLC, & TLC, UV Visible Spectrometer,
- 9.2 Chemical analysis, Titration Method, colour test, and all tests, which vary from flavor to flavor.



**10. Purified Water Wherever mentioned in this standard shall Conform to standards prescribed in IS-14543 as under PFA rules 1955. for Following Testing Parameters; Microbiological/Chemical & Radioactive Residues/Pesticide Residue (testing Parameters shall ensure Water before adding Flavor )**

<b>Microbiological Parameters</b>		<b>Requirements</b>	<b>Quantity</b>
10.1	E.Coli	absent	250 ml
10.2	Coliform bacteria	absent	250 ml
10.3	Aerobic Microbial count 37°C in 24 hours	NMT	20 per ml
10.4	Aerobic Microbial count 20~22°C in 72 hours	NMT	100 per ml
10.5	Yeast and mould	absent	250 ml
10.6	Feecal Streptococci	absent	250 ml
10.7	Staphylococcus aureus	absent	250 ml
10.8	Sulphite-reducing anaerobes	absent	50 ml
10.9	Pseudomonas aeruginosa	absent	250 ml
10.10	Vibrio cholera	absent	250 ml
10.11	V.parahaemolyticus	absent	250 ml
10.12	Salmonella and shigella	absent	250 ml
<b>Organoleptic Test.</b>			
10.13	Colour,	2 TCU	
10.14	Odour	Agreeable	
10.15	Taste	Agreeable	
10.16	Turbidity (before adding herbs)	2 NTU	
<b>Physical parameters.</b>			
10.17	Hydrogen ion conc pH	6.5 ~ 8.5	
10.18	Total Dissolved Solids (TDS)	NMT	500.0 mg/litre
<b>Chemical Parameters.</b>			
<b>Trace Metals Test.</b>			
10.19	Barium (as Ba)	NMT	1.0 mg/litre
10.20	Manganese (as Mn)	NMT	0.1 mg/litre
10.21	Copper (as Cu)	NMT	0.05 mg/litre
10.22	Zinc (as Zn)	NMT	5.0 mg/litre
10.23	Silver (as Ag)	NMT	0.01 mg/litre
10.24	Antimony (as Sb)	NMT	0.005 mg/litre
10.25	Selenium (as Se)	NMT	0.01 mg/litre
10.26	Aluminum (as Al)	NMT	0.03 mg/litre
10.27	Chromium (as Cr)	NMT	0.05 mg/litre
10.28	Nickel (as Ni)	NMT	0.02 mg/litre
10.29	Lead (as Pb)	NMT	0.01 mg/litre
10.30	Borate (as B)	NMT	5.0 mg/litre
10.31	Iron (as Fe)	NMT	0.1 mg/litre
10.32	Sulphide (as H <sub>2</sub> S)	NMT	0.05 mg/litre



### Toxic Substances.

10.33	Mercury (as Hg)	NMT	0.001	mg/litre
10.34	Cadmium (as Cd)	NMT	0.01	mg/litre
10.35	Arsenic (as As)	NMT	0.05	mg/litre
10.36	Poly nuclear aromatic hydrocarbons	ND		
10.37	Poly chlorinated biphenyle (PCB)	ND		
10.38	Hydrocarbons (PAH)	ND		
10.39	Fluoride (as F)	NMT	1.0	mg/litre
10.40	Magnesium (as Mg)	NMT	30.0	mg/litre
10.41	Calcium (as Ca)	NMT	75.0	mg/litre
10.42	Alkalinity (as HCO <sub>3</sub> )	NMT	200.0	mg/litre
10.43	Chlorides (Cl)	NMT	200.0	mg/litre
10.44	Sodium (as Na)	NMT	200.0	mg/litre
10.45	Sulphate (as SO <sub>4</sub> )	NMT	200.0	mg/litre
10.46	Nitrates (as NO <sub>3</sub> )	NMT	45.0	mg/litre
10.47	Nitrites (as NO <sub>2</sub> )	NMT	0.02	mg/litre

### Misc. Analyses

10.48	Mineral oil	absent	
10.49	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH)	absent	
10.50	Residual free chlorine	NMT	0.2 mg/litre
10.51	Anionic Surface Active Agents (as MBAS)	NMT	0.2 mg/litre

### Inorganics Test

10.52	Cyanide (as CN)	absent
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### Radioactive residues test.

10.53	"Alpha" activity	NMT	0.1 Bacquerel / litre (Bq)
10.54	"Beta" activity	NMT	1.0 Bacquerel /litre (Bq)

\*(GMP=as per good manufacturing practice) (NMT=Not more than) (ND=not detectable)



## **11. Flavored water Water shall conforms to following Parameters;**

Microbiological/ Chemical/ Radioactive residues/Pesticide Residue  
 (Parameters followed after adding Flavor in Flavored water)

<b>Microbiological Parameters</b>		<b>Requirements</b>	
11.1	Coliform bacteria	absent	250 ml
11.2	Total Plate Count	NMT	100 per ml
11.3	Yeast and Mould	absent	250 ml
<b>Chemical Parameters</b>		<b>Requirements</b>	
<b>Organoleptic Test</b>			
11.4	Colour,	Agreeable*	GMP
11.5	Odour	Agreeable*	GMP
11.6	Taste	Agreeable*	GMP
<b>Physical parameter</b>			
11.7	Hydrogen ion conc pH	6.5 ~ 8.5	
11.8	Total Dissolved Solids (TDS)		500.0 mg/litre
<b>Trace Metals Test</b>			
11.9	Copper (as Cu)	NMT	0.05 mg/litre
11.10	Zinc (as Zn)	NMT	5.0 mg/litre
11.11	Lead (as Pb)	NMT	0.01 mg/litre
11.12	Iron (as Fe)	NMT	0.1 mg/litre
11.13	Sodium (as Na)	NMT	200 mg/litre
<b>Toxic Substance</b>			
11.14	Mercury (as Hg)	NMT	0.001 mg/litre
11.15	Cadmium (as Cd)	NMT	0.01 mg/litre
11.16	Arsenic (as as)	NMT	0.05
11.18	Polynuclear aromatic hydrocarbons,	ND	
11.19	Phenolic compound,	ND	
11.20	Anionic Surface Active Agents (as MBAS)	NMT	0.2 mg/litre
<b>Misc. Analyses</b>			
11.21	protein	Nil	
11.22	Carbohydrates	Nil	
11.23	Sugars	Nil	
11.24	Calories	Nil	
<b>Pesticide Residue all below detectable limits</b>			
11.25	Pesticide residues	NMT	0.0001 mg/litre
11.26	Total pesticide residues	NMT	0.0005 mg/litre

\*(GMP=as per good manufacturing practice) (NMT=Not more than) (ND=not detectable)



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## **12. Product Durability.**

Product durability shall be declared on package. Product durability should be declared considering shelf life, laboratory results and other examinations. Quality and Analysis checks needs to be done on batch basis and records should be maintained.

## **13. Packing.**

### **13.1 Containers.**

The Flavored Water shall be properly Packed in clean glass bottles , colored bottles, food grade plastic containers PET /PC / HDPE/ LDPE, Aluminum Cans

- 13.2 All Flavored Water refills shall be cleaned and sanitized using latest technology and Good Manufacturing Practice.(GMP)
- 13.3 The containers shall be filled in hygienic atmosphere. GMP needs to be Followed

### **Inspection of Empty and Filled Containers**

- 13.4 Containers shall be inspected thoroughly before and after filling. Bright light can be used in back ground to check containers. Magnification boxes may be used if necessary. Defective containers and product contained should be rejected.

## **14. Weights and measures.**

Standard of Weights & Measures (Packaged Commodities) Rules, 1977 may also be followed for deciding packing size and also considered for designing standard.

## **15. Labeling.**

Labels should follow all applicable rules and regulations as per PFA Rules, 1955. The following information should be given on label/container. The information should be legible:

- 15.1 Brand Name ;
- 15.2 Category (Flavored Water) Water-based beverages
- 15.3 Ingredients;  
(purified water; Herbs; Fruits or parts of Plant origin extracts; Flavor name shall be used)
- 15.4 Name and address of Manufacturer
- 15.5 Marketing office address where Required;
- 15.6 Date of manufacture;
- 15.7 Batch number;



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- 15.8 Net volume of content;
  - 15.9 Condition for storage;
  - 15.10 Classes names, if any;
  - 15.11 Best before use;
  
  - 15.12 Not for medical use;
  - 15.13 Nutrition Facts;
  - 15.14 Once open use before;
  - 15.15 Pictorial suggesting of Flavored Water;
  - 15.16 Processing method;
  - 15.17 country of origin ;
  - 15.18 Crush the bottle after use; (If its one time use Container)
  - 15.19 Preservatives; Carry over food additives (64c. as Per PAF Rules, 1955 ) apply
  - 15.20 Any other markings required under the Standards of Weights and Measures (Packaged Commodities) Rules, 1977, and the PFA Act, 1954

## **16. Sampling for testing.**

Samples to be collected test microbiological/chemical/quality tests when production is done in batches constituting lots, samples of each lot needs to be Maintained with details of production batch details. Samples from each lot will be tested to confirm standard. Samples need to be collected on random basis. Samples should be suitably numbered.

## **17. Testing.**

Internationally accepted testing methods should be followed. However Standards for Purified drinking water Shall apply since major ingredient is water. Other tests to confirm property of Herbs, Fruits or parts of Plant origin extracts value needs to be done. ingredient property testing should be done using HPLC, TLC., Uv Visible Spectrometer, Titration Method and colour test New food safety standard Act may also be applied.

## **18. Qualities of Testing Reagents.**

Only pure chemical, which does not contain impurities, pure should be used for testing since Quality of Chemicals used influence test results largely. Double Distilled water should be used when required.

## SPECIMEN LABEL

 Recyclable bottle

**MRP Rs. 0/- (INCL OF ALL TAXES)**  
**BATCH NO. DATE OF MFG.**  
See in Label

After opening, keep under hygienic conditions  
Consume within XX Days  
Best before XX Month From Processed  
Stored in a cool and dry place  
keep away from direct sunlight

 Do not litter    Still Water Pin : 628616

**Process & Packed By:**  
**Prince aqua industries,**  
11/145-a, Gnanaraj Nagar,  
Mukuperi Thiruchendur  
Dist Thoothukudi  
Pin : 628616

**Net Quantity**  
**2 l**

**Prince**  
**Flavored Water**  
**Added Vetiver Herbal Flavor**

**Nutrition Facts**

Calories	0g
Total Fat	0g
Total Carb	0g
Sugar	0g
Protein	0g
flavor	0.2%
Purified Water	99.8%

**Ingredients:**  
Purified Water; Vetiver Flavor

**CRUSH THE BOTTLE AFTER USE**  
**CONTAINS ADDED FLAVOR**  
Not for Medical use

## SPECIMEN LABEL

 Recyclable bottle

**MRP Rs. 0/- (INCL OF ALL TAXES)**  
**BATCH NO. DATE OF MFG.**  
See in Label

After opening, keep under hygienic conditions  
Consume within XX Days  
Best before XX Month From Processed  
Stored in a cool and dry place  
keep away from direct sunlight

 Still Water Pin : 628616

**Process & Packed By:**  
**Prince aqua industries,**  
11/145-a, Gnanaraj Nagar,  
Mukuperi Thiruchendur  
Dist Thoothukudi  
Pin : 628616

**Net Quantity**  
**20 l**

**Prince**  
**Flavored Water**  
**Added Vetiver Herbal Flavor**

**Nutrition Facts**

Calories	0g
Total Fat	0g
Total Carb	0g
Sugar	0g
Protein	0g
flavor	0.2%
Purified Water	99.8%

**Ingredients:**  
Purified Water; Vetiver Flavor

**CONTAINS ADDED FLAVOR**  
Not for Medical use

**Good hygienic practices for a  
water-based beverage industry**  
**Version 1.**

## **GOOD HYGIENIC PRACTICES FOR A VALUE ADDED WATER / ANY WATER BASED BEVERAGES PROCESSING PLANT VERSION.1**

1. FIELD OF APPLICATION The hygienic practices cover the appropriate general techniques for collecting drinking water, its treatment, bottling, packaging, storage, transport, distribution and sale for direct consumption, so as to guarantee a safe, healthy and wholesome, product.

### **2. HYGIENE PROCEDURES FOR COLLECTION OF DRINKING WATER**

**Source:-** Well Water, Borewell Water, Municipal (Pipe) Supply, Sea Water (used after de-mineralisation)

**Testing :-** Quality of water samples from source water should be tested from government approved lab and must be safe for human consumption.

- 2.1 **Collection:-** In the case of collection of water intended for processing from ground water sources, it Should be ensured that it is Free from pollution, whether caused by natural occurrence or actions human or neglect or ill-will.
- 2.2 If water to be processed for drinking, obtained from any other potable source it should be protected from its being contaminated.
- 2.3 The firms using waters from drinking water systems should ensure that it meets the requirements of the standard.
- 2.4 **Materials:-** The pipes, pumps or other required devices coming into contact with water and used for its collection should be made of such material that they do not change the quality of water rendering it unfit.

### **3. PROTECTIVE MEASURES**

- 3.1 All Possible precautions should be taken within the protected perimeter to avoid any pollution of, or external influence on, the quality of the ground or surface water. Preventive measures should be taken for disposal of liquid, solid or gaseous waste that could pollute the ground or surface water. Drinking water sources should not be in the path of potential source of underground contamination.
- 3.2 Protection of the Area of Origin The immediate surroundings of the extraction or collection area should be protected by limiting access to authorised persons only. Well heads and spring outflows should be protected by a suitable structure to prevent entry by un-authorised individuals, pests and other animals, birds, sources of extraneous Contamination.

#### **4. TRANSPORT OF DRINKING WATER**

##### **4.1 Means of Transport, Piping and Reservoirs:-**

Any Vehicle, piping or reservoir used in the transporting of water from its source to the bottling facilities, should be made of inert material such as food grade plastic, ceramic and stainless steel, which prevent any deterioration, be it by water, handling, servicing or by disinfection and it should allow easy cleaning.

##### **4.2 Maintenance of Vehicles and Reservoirs:-**

Any vehicle or reservoir should be properly cleaned and, if necessary, disinfected and kept in good condition, not to present any danger of contamination to drinking water and of deterioration of its quality.

### **5 ESTABLISHMENT FOR PROCESSING OF DRINKING WATER - DESIGN AND FACILITIES**

##### **5.1 Location :-** Establishments should be located in areas which are free from objectionable odors, smoke, dust or other contaminants and are not subject to flooding.

##### **5.2 Roadways and Areas Used by Wheeled Traffic:-**

Such roadways and areas serving the establishment which are within its boundaries or in its immediate vicinity should have a hard paved or Black Topped surface suitable for wheeled traffic. There should be adequate drainage and provision should be made for protection of the extraction area.

##### **5.3 Buildings and Facilities:-**

###### **5.3.1 Type of Construction** Buildings and facilities should be of sound construction and maintained.

###### **5.3.2 Disposition of Holding Facilities:-**

Rooms for storing or Processing of water and areas for cleaning of containers to be reused should be Separate from the bottling areas to prevent the product from being contaminated. Raw materials and packaging materials and any other materials should be stored apart from product.

###### **5.3.3 Adequate working space** should be provided to allow for satisfactory performance of all operations.

###### **5.3.4 The design** should be such as to permit easy and adequate cleaning and to facilitate proper supervision of hygiene for drinking water.

###### **5.3.5 The buildings and facilities** should be designed to provide separation by partition, location or other effective means between those operations which may cause cross-contamination.

by partition, location or other effective means between those operations which may cause cross-contamination.

- 5.3.6 Buildings and facilities should be designed to facilitate hygienic operations by means of a regulated flow in the process from the arrival of the drinking water at the premises to the finished product, and should provide for appropriate conditions for the process and the product.

## **6 Drinking Water Handling, Storing and Bottling Areas:**

Floors where appropriate, should be of water-proof, non-absorbent, washable, non-slippery and made of non-toxic materials, without crevices, and should be easy to clean and disinfect. Where appropriate, floors should have sufficient slope for liquids to drain to trapped outlet.

- 6.1 **Walls:-** Where appropriate, should be of water proof, non-absorbent, washable and non-toxic materials and should be light colored. Up to a height appropriate for the operation they should be smooth and without crevices, and should be easy to clean and disinfect. Where appropriate, angles between walls, between walls and floors, and between walls and ceilings should be sealed and smoothen to facilitate cleaning
- 6.2 **Ceilings:-** Should be so designed, constructed and finished as to prevent the accumulation of dirt and minimize condensation, Mould growth and flaking, and should be easy to clean.
- 6.3 **Windows:-** Windows and other openings should be so constructed as to avoid accumulation of dirt and those which open should be fitted with screens. Screens should be easily movable for cleaning and kept in good repair. Internal window sills should be sloped to prevent use as shelves.
- 6.4 **Doors:-** Should have smooth, non-absorbent surfaces and, where appropriate, be self-closing and close fitting type.
- 6.5 **Stairs:-** lift cages and auxiliary structures Platforms, ladders, chutes, should be so situated and constructed as not to cause contamination to drinking water. Chutes should be constructed with provision of inspection and cleaning hatches.
- 6.6 **Piping:-** Piping for drinking water lines should be independent of non-potable water. Non potable water pipes should have a different colour from potable water pipes for easy identification.
- 6.7 In drinking water handling areas all overhead structures and fittings ensure, mould growth and flaking. They should be easy to clean.

should be installed in such a manner as to avoid contamination directly or indirectly of drinking water and raw materials by condensation and drip, and should not hamper cleaning operations. They should be insulated where appropriate and should be designed and finished as to prevent the accumulation of dirt and to minimize condensation, mould growth and flaking. They should be easy to clean.

- 6.8 Living quarters, toilets should be completely separated and should not open directly in to Source /product water handling areas.
- 6.9 Where appropriate, establishments should be so designed that access can be controlled.
- 6.10 The use of material which cannot be adequately cleaned and disinfected, such as wood , should be avoided unless its use would not be a source of contamination.
- 6.11 **Canalisation Drainage Lines:-** Canalisation and drainage and used water lines should be built and maintained in such a manner as not to present any risk whatsoever of polluting the underground water source.
- 6.12 **Fuel Storage Area:-** Any storage area or tank for the storing of fuels such as coal or hydrocarbons should be designed, protected, controlled and maintained in such a manner as not to present a risk of pollution during the storage and manipulation of these fuels.

## 7. HYGIENIC FACILITIES

- 7.1 Water Supply
- 7.2 Ample supply of potable water under adequate pressure and of suitable temperature should be available with adequate facilities for its storage, where necessary, and distribution with adequate protection against contamination. The potable water should conform to the standard for drinking water .
- 7.3 Potable water, non potable water for steam production or for refrigeration or for any other use should be carried in separate line with no cross connection between. It would be desirable that these lines be identified by different colors.
- 7.4 Effluent and Waste Disposal Establishments should have an efficient effluent and waste disposal system which should at all times be maintained in good order and repair. All effluent lines (including sewer systems) should be large enough to carry the full loads and should be so constructed as to avoid contamination of potable water supplies.

7.5 Changing Facilities and Toilets Adequate, suitable and conveniently located:

changing facilities and toilets should be provided in all establishments. Toilets should be so designed as to ensure hygienic removal of waste matter.

These areas should be well lighted, ventilated and should not open directly on to product water handling areas. Hand washing facilities with warm or hot and cold water, a suitable hand-cleaning preparation, and suitable hygienic means of drying hands, should be provided adjacent to toilets and in such a position that the employee will have to use them when returning to the processing area.

Where hot and cold water are available mixing taps should be provided. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided near each washing facility. Care should be taken that these receptacles for used paper towels are regularly emptied. Taps of a non-hand operable type are desirable. Notices should be posted directing personnel to wash their hands after using the toilet.

#### 7.6 **Hand Washing Facilities in Processing Areas :-**

Adequate and conveniently located facilities for hand washing and drying should be provided wherever the process demands. Where appropriate, facilities for hand disinfection should also be provided.

Warm or hot and cold water should be available and taps for mixing the two should be provided. There should be suitable hygienic means of drying hands. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided adjacent to each washing facility.

Taps of a non-hand operable type are desirable. The facilities should be furnished with properly trapped waste pipes leading to drains.

#### 7.7 **Disinfection Facilities Where appropriate:-**

adequate facilities for cleaning and disinfection of equipment should be provided. These facilities should be constructed of corrosion resistant materials, capable of being easily cleaned, and should be fitted with suitable means of supplying hot and cold water in sufficient quantities.

7.8 **Lighting:-** Adequate lighting should be provided throughout the establishment. Where appropriate, the lighting should not alter colors and the intensity should not be less than: 540 lux (50 foot candles) at d protected to prevent contamination of product water in case of breakage.

all inspection points 220 lux (20 foot candles) in work rooms 110 lux (10 foot candles) in other areas. Suspended light bulbs and fixtures in any stage of production should be of a safer type and protected to prevent contamination of product water in case of breakage.

- 7.9 **Ventilation:-** Adequate ventilation should be provided to prevent excessive heat, steam condensation and dust and to remove contaminated air. The direction of the air flow Ventilation openings should be provided with a screen or other protecting enclosure of non-corrodible material. Screens should be easily removable for cleaning.
- 7.10 Facilities for storage of waste and Inedible Material Facilities should be provided for the storage of waste and inedible material prior to removal from the establishment. These facilities should be designed to prevent access to waste or inedible material by pests and to avoid contamination of product water

## 8. EQUIPMENT AND UTENSILS

- 8.1 **Materials:-** All equipment and utensils used in product water handling areas and which may contact the product water should be made of material which does not transmit toxic substances, odour or taste, is non-absorbent, is resistant to corrosion and is capable of withstand repeated cleaning and disinfection.  
Surface should be smooth and free from pits and crevices. The use of wood and other materials which cannot be adequately cleaned and disinfected should be avoided except when their use would not be a source of contamination.
- 8.2 Hygienic Design, Construction and Installation All equipment and utensils should be so designed and constructed as to prevent hazards and permit easy and thorough cleaning and disinfection.

## 9. ESTABLISHMENT

- 9.1 **Maintenance:-** The buildings, equipment, utensils and all other physical facilities of the establishment, including drains, should be maintained in good repair and in an orderly condition.
- 9.2 Cleaning and Disinfection to prevent contamination of product water, all equipment and utensils should be cleaned as frequently as necessary and disinfected whenever circumstances demand.

- 9.3 Adequate precautions should be taken to prevent product water from being contaminated during cleaning or disinfection of rooms, equipment or utensils, by wash water and detergents or by disinfection and their solutions. Detergents and disinfectants should be suitable for the purpose intended. Any residues of these agents on a surface which may come in contact with product water should be removed by thorough rinsing with water, before the area or equipment is again used for handling product water.
- 9.4 Either immediately after cessation of work for the day or at such other times as may be appropriate, floors, including drains, auxiliary structures and walls of water handling areas should be thoroughly cleaned.

**9.5 Hygiene Control Program:-**

A permanent cleaning and disinfection schedule should be drawn up for establishment to ensure that all areas are appropriately cleaned and that critical areas, equipment and material are designated for special attention.

An individual, who should preferably be a permanent member of the staff of the establishment and whose duties should be independent of production should be appointed to be responsible for the cleanliness of the establishment.

He should have a thorough understanding of the significance of contamination and the hazards involved. All cleaning personnel should be well-trained in cleaning techniques.

- 9.6 Storage and Disposal of Waste material should be handled in such a manner as to avoid contamination of product water. Care should be taken to prevent access to waste by pests. Waste should be removed from the water handling and other working areas as often as necessary.

Immediately after disposal of the waste, receptacles used for storage and any equipment which has come into contact with the waste should be cleaned and disinfected. The waste storage area should also be cleaned and disinfected.
- 9.7 Exclusion of Animals that are uncontrolled or that could be a hazard to health should be excluded from establishments.

## **10. Pest Control**

- 10.1 There should be an effective and continuous program for the control of pests. Establishments and surrounding areas should be regularly examined for evidence of infestation.
- 10.2 If pests gain entry into the establishment, eradication measures should be instituted. Control measures involving treatment with chemical, physical or biological agents should only be undertaken by direct supervision of personnel who have a thorough knowledge of the potential hazards to health resulting from the use of these agents, including those hazards, which may arise from residues.
- 10.3 Pesticides should only be used as a precautionary measure. Before pesticides are applied, care should be taken to safeguard product water, equipment and utensils from contamination. After application contaminated equipment and utensils should be thoroughly cleaned to remove residues prior to being used again.

## **11. Storage of Hazardous Substances**

- 11.1 Pesticides or other substances which may present a hazard to health should be suitably labeled with a warning about their toxicity and use. They should be stored in locked rooms or cabinets, and dispensed and handled only by authorized and properly trained personnel or by persons under strict supervision of trained personnel. Extreme care should be taken to avoid contamination.
- 11.2 Except when necessary for hygienic or processing purpose, no substance which could contaminate product water should be used or stored in product water handling areas.
- 11.3 **Personal Effects and Clothing:-** Personnel effects and clothing should not be deposited in product water handling areas.

## **12 PERSONNEL HYGIENE AND HEALTH REQUIREMENTS**

### Hygiene of Water-based beverages handlers

- (1) A Water-based beverages handler must, when engaging in any Water-based beverages handling operation –
  - (a) Take all practicable measures to ensure his or her body, anything from his or her body, and anything he or she is wearing does not contaminate Water-based beverages or surfaces likely to come into contact with Water-based beverages;

- (b) Take all practicable measures to prevent unnecessary contact with ready-to drink Water-based beverages;
  - (c) Ensure outer clothing is of a level of cleanliness that is appropriate for the handling of Water-based beverages that is being conducted;
  - (d) Only use on exposed parts of his or her body bandages and dressings that are completely covered with a waterproofed covering;
  - (e) Not drink over unprotected Water-based beverages or not to eat on surfaces likely to come into contact with Water-based beverages;
  - (f) Not to sneeze, blow or cough over unprotected Water-based beverages or surfaces likely to come into contact with Water-based beverages;
  - (g) Not spit, smoke or use tobacco or similar preparations like Chewing gum, pan masala, Suparie, in areas where Water-based beverages is handled and
  - (h) Not to urinate or defecate except in a toilet.
- (2)** A Water-based beverages handler must wash his or her hands in accordance with subclause (4) –
- (a) immediately before working with ready-to-drink Water-based beverages after handling raw Water-based beverages; and
  - (b) Immediately after using the toilet.
- (3)** A Water-based beverages handler must, when engaging in a Water-based beverages handling operation that involves unprotected Water-based beverages or surfaces likely to come into contact with Water-based beverages, wash his or her hands in accordance with subclause (4) –
- (a) before commencing or re-commencing handling Water-based beverages;
  - (b) immediately after smoking, coughing, sneezing, using a handkerchief or disposable tissue, eating, drinking or using tobacco or similar substances; and
  - (c) after touching his or her hair, scalp or a body opening.

- (4) **A Water-based beverages handler must, whenever washing his or her hands –**
- (a) use the hand washing facilities provided;
  - (b) thoroughly clean his or her hands using soap or other effective means, and warm running water; and
  - (c) thoroughly dry his or her hands on a single use towel or in another way that is not likely to transfer pathogenic micro-organisms to the hands.
- (5) A Water-based beverages handler who handles Water-based beverages at temporary Water-based beverages premises does not have to clean his or her hands with warm running water, or comply with paragraph (4)(c), if the appropriate enforcement agency has provided the Water-based beverages business operating from the temporary Water-based beverages premises with approval in writing for this purpose.
- 12.1 **Hygiene Training:-** Managers of establishments should arrange for adequate and continuous training of all water handlers in hygienic and in personal hygiene so that they understand the precautions necessary to prevent contamination of product water.
- 12.2 **Medical Examination:-** Persons who come into contact with product water in the course of their work should have a medical examination prior to employment if the official agency having jurisdiction, acting on medical advice, considers that this is necessary, whether because of epidemiological considerations or the medical history of the protective water handler. Medical examination of water handlers should be periodically carried out and when clinically or epidemiologically indicated.
- 12.3 **Communicable Diseases:-** The management should take care to ensure that no person, whether known or suspected to be suffering from, or to be a carrier of a disease likely to be transmitted or afflicted with infected wounds, skin infections, sores or diarrhea, is permitted to work in any product water handling area in any capacity in which there is any likelihood of such a person directly or indirectly contaminating product water with pathogenic micro-organisms. Any person so affected should immediately report to the management.
- 12.4 **Injuries:-** Any person who has a cut or wound should not continue to handle product water or contact surfaces until the injury is completely protected with a waterproof covering which is firmly secured, and which is conspicuous in color. Adequate first-aid facilities should be provided for this purpose.

- 12.5 **Washing of Hands:-** every person, while on duty in a product water handling area, should wash the hands frequently and thoroughly with a suitable hand cleaning preparation under running warm water. Hands should always be washed before commencing work, immediately after using the toilet, after handling contaminated material and whenever else necessary. After handling any material which might be capable of transmitting disease, hands should be washed and disinfected immediately. Notices requiring hand-washing should be displayed. There should be adequate supervision to ensure compliance with this requirement.
- 12.6 **Personal Cleanliness:-** Every Person engaged in a product water handling area should maintain a high degree of personal cleanliness while on duty, and should, at all times while so engaged, wear suitable protective clothing including head covering and footwear, all of which should be cleanable, unless designed to be disposed off and should be maintained in a clean condition consistent with the nature of the work in which the person is engaged. Aprons and similar items should not be washed on the floor. When product water is manipulated by hand, any jewellery that cannot be adequately disinfected should be removed from the hands. Personnel should not wear any insecure jewellery when engaged in handling product water
- 12.7 **Personal Behavior:-** Any Behavior which could result in contamination product water, such as eating, use of tobacco, chewing (for example gum, sticks, betel nuts, etc) or hygienic practices such as spitting, should be prohibited in drinking water handling areas.
- 12.8 **Visitors:-** Precautions should be taken to prevent visitors as far as possible from visiting the product water handling areas, If unavoidable, the visitors should observe the provisions of 6.8 and 7.3
- 12.9 Supervision Responsible for ensuring compliance by all personnel with all requirements of 6.1 to 6.8 and the responsibility should be specifically allocated competent supervisory personnel.

### **13. ESTABLISHMENT : HYGIENIC PROCESSING REQUIREMENTS**

- 13.1 Raw Material Requirements to guarantee a good and stable quality of drinking water, the quality criteria should be monitored regularly.
- 13.2 Should there be a perceptible lacking in meeting the requirements, necessary corrective measures are immediately to be taken.
- 13.3 Treatment The treatment may include decantation, filtration, combination filtration (for example membrane filters, depth filters, cartridges filters, and activated carbon), demineralization, reverse osmosis, aeration and disinfection.

- 13.4 Processing should be supervised by technically competent personnel.
- 13.5 All steps in the production process, including packaging, should be performed without unnecessary delay and under conditions which will prevent the possibility of contamination, deterioration, or the growth of pathogenic and spoilage micro-organisms.
- 13.6 Rough treatment of containers should be avoided to prevent the possibility of contamination of the processed product.
- 13.7 Treatments are necessary controls and should be such as to protect against contamination or development of a public health hazard and against deterioration within the limits of good commercial practice.

## **14 Packaging Material and Containers**

- 14.1 All packaging material should be stored in a clean and hygienic manner. The material should be appropriate for the product to be packed and for the expected conditions of storage and should not transmit to the product objectionable substances beyond the limits specified. The packaging material should be sound and should provide appropriate protection from contamination. Only packaging material required for immediate use should be kept in the packing or filling area.
- 14.2 Product containers should not have been used for any purpose that may lead to contamination of the product. In case of new containers if there is a possibility that they have been contaminated, should be cleaned and disinfected. When chemicals used for this purpose, the container should be rinsed. Containers should be well drained after rinsing. Used and unused containers should be inspected immediately before filling.

## **15. Filling and Sealing of Containers**

- 15.1 Packaging should be done under conditions that preclude the introduction of contaminants in the product.
- 15.2 The methods, equipment and material used for sealing should guarantee a tight and impervious sealing and should not damage the containers nor deteriorate the physical, chemical, microbiological and organoleptic qualities of product water.
- 15.3 Multiservice refills should be washed, rinsed and sanitised before using. Chemical sanitizers should be removed as with product specification.

## **16. Packaging of containers**

The packaging of containers should protect the later from contamination and damage and allow appropriate handling and storing.

## **17. Lot Identification**

Each container shall be permanently marked with code to identify the producing factory and the lot. A lot is quantity of Herbal water produced under identical conditions, all packages of which should bear a lot number that identifies the production during a particular time, interval, and usually from a particular 'processing line' or other processing unit.

## **19. Processing and Production Records:**

Permanent, legible and dated records of pertinent processing and production details should be kept concerning each lot. These records should be retained for a period that exceeds the shelf life of the product or longer if required. Records should be kept of the initial distribution by lot.

## **20. Storage and Transport of the End-Product:**

The end-product should be stored and transported under such conditions as will preclude contamination with and/or proliferation of micro-organisms and protect against deterioration of the product or damage to the container. During storage, periodic inspection of the end-product should take place to ensure that only Flavoured water which is fit for human consumption is dispatched and that the end-product specification are complied with.

## **21. Herbal extracts storage and mixing.**

Herbal extracts should be kept safely, in a cool place away from sunlight in a tight container when not used.

- 21.1 Herb mixing should be done in a separate protected area by a qualified person. Area and equipments should be clean and should be sanitized using appropriate methods.



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